MBV

Modular Ball Valve Interlock

User Manual - Original Language Version

MBV-FSS-L/O-L/C

The Castell MBV modular ball valve interlock is an integral valve interlock designed to enable locking off, in either the open, closed or both open and closed conditions. The MBV is suitable for any quarter-turn valves including Ball, Plug and Butterfly Valves up to 2 1/2" bore size. Fitting the MBV enforces a logical, predetermined and safe sequence of operation where the control of flow paths is critical. The MBV is manufactured in stainless steel with stainless steel lock portions, which makes it ideal for use in harsh or corrosive environments where it is subject to heavy use.

Operation

The Castell MBV modular ball valve interlocks are used to prevent unauthorised opening (or closing) of a line ensuring that the valve is always locked in the crucial position.

MBV modular ball valve interlock, locked closed only condition

① **Valve is normally locked closed, key is free**

② **Insert and turn key to unlock the valve**

③ **Valve is unlocked and opened, key is trapped**

1. **The service line is normally closed and the MBV modular ball valve interlock locks the valve in the closed condition. The key is free.**
2. **By inserting and turning the key in the MBV, you can release the valve from being locked closed to open the line.**
3. **The key stays trapped while the valve can be opened.**

While every effort has been made to ensure the accuracy of the information provided, no liability can be taken for any errors or omission.
Castell Safety International Limited reserves the right to alter specifications and introduce improvements without prior notice.

Operation

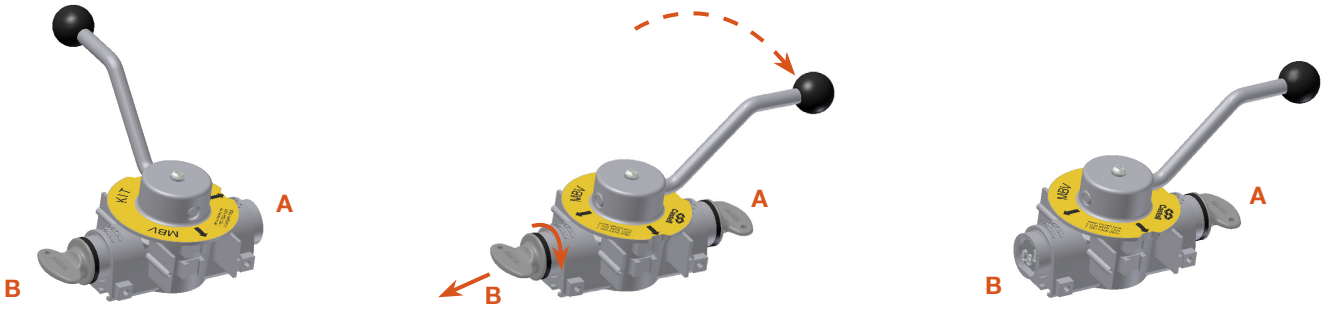
The Castell MBV modular ball valve interlocks with locked opened and locked closed condition are used to prevent unauthorised closing of one of lines (e. g. operational line) ensuring that one line is always open (e. g. service line).

MBV modular ball valve interlock, locked opened and locked closed condition

① **Valve is locked open, key B is trapped, key A is free**

② **Insert and turn key A to unlock the valve. Turn the valve to closed position. Turn and release key B to lock the valve in the new position.**

③ **Valve is closed, key A is trapped, key B is free**



1. **The service line is normally open and the MBV modular ball valve interlock locks the valve in the open position. Key A is free, while key B is trapped.**
2. **By inserting and turning key A in the MBV, the valve can be released from locked open condition and changed to closed. By turning and releasing the key B the valve is locked in the closed condition.**
3. **Key A stays trapped and key B is released while the valve locked closed.**

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Usage

The MBV Modular ball valve interlock should be used to prevent unauthorised closing or opening of of lines
.

The MBV modular ball valve Interlock is not designed for large bore valves above 2 1/2 inches.

No hazardous substances were used in the manufacture of this product. The product can be disposed of in standard waste.

Installation

Fitting the MBV enforces a logical, predetermined and safe sequence of operation where the control of flow paths is critical.

The MBV interlocks are available in either the locked open, locked closed or both locked opened and locked closed conditions.

IMPORTANT:
The MBV interlock should only be fitted by the Castell Engineering Team. Please supply the valves to Castell to enable the MBV to be fitted.

The MBV Modular Ball Valve Interlock must be installed by a competent and qualified person who has read and understood these instructions. Please retain this document in your technical file.

Maintenance

Periodic visual checks should be carried out by the site manager/safety officer.
Do not lubricate lock barrel with oil or grease, use CK Dry Powder Graphite if necessary.

In case of defects being detected please contact your nearest Castell Support Department for further actions. Please see Contact section for contact details.

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Technical Data

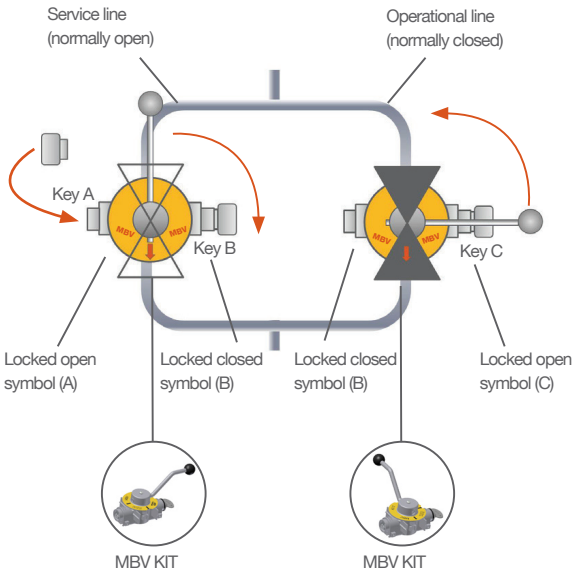
Temperature rating	Minimum: -40°C [-40°F] ice free for Q & FS type
	Maximum: 107°C [224,6°F] for Q type/140°C [284°F] for FS type or 288°C [550°F] upon request
Type of mounting	The MBV modular ball valve interlocks must be fitted to the valves by Castell engineering team
Weight	4,0 kg
Material	Stainless steel body with stainless steel lock portions
MTTF Certification	Available on request

Application

The MBV is designed to operate as part of an integrated safety system controlling the operation of quarter turn ball valves in safety critical applications. The typical application of the MBV modular ball valve interlock is preventing unauthorised closing of one of the lines ensuring that one line is always open.

Interlock valves in both open and closed positions have an inter-changeable key between the valves ensuring that the first valve is open before the second is closed. While the operational line is locked opened, the service line is locked closed. Prior to opening the service line it needs to be ensured the operational line is locked closed. By inserting key A (from control room) in the MBV, which controls the operational line, you can unlock the valve and bring it from opened to closed. By turning and releasing key B, you can lock the valve in the closed condition.

Key B can be taken to the next valve, which controls the service line. This valve can now be unlocked by inserting and turning key B in the MBV. The valve position can then be changed from closed to open and locked in the opened position by releasing key C. This key can then be taken to the control room.



EC-Declaration

We, the manufacturers, declare that the components, detailed herein and placed on the market, comply with all the essential health and safety requirements applying to them.

Empowered signatory:

Mr T.C. Whelan
Managing Director

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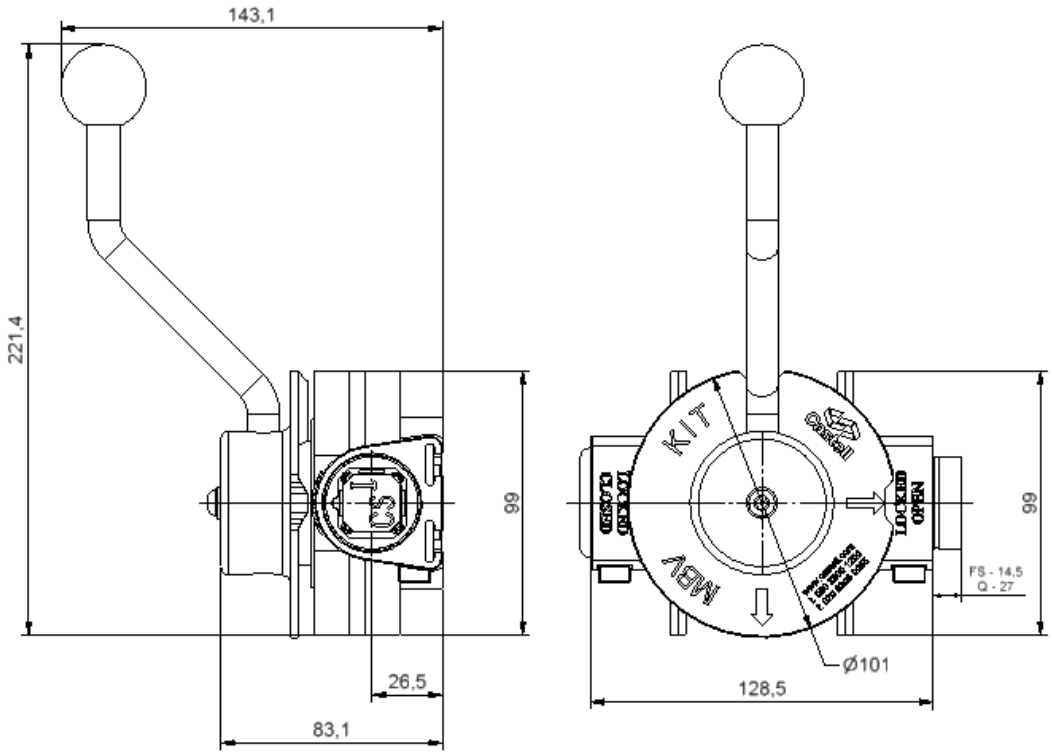
Drawing

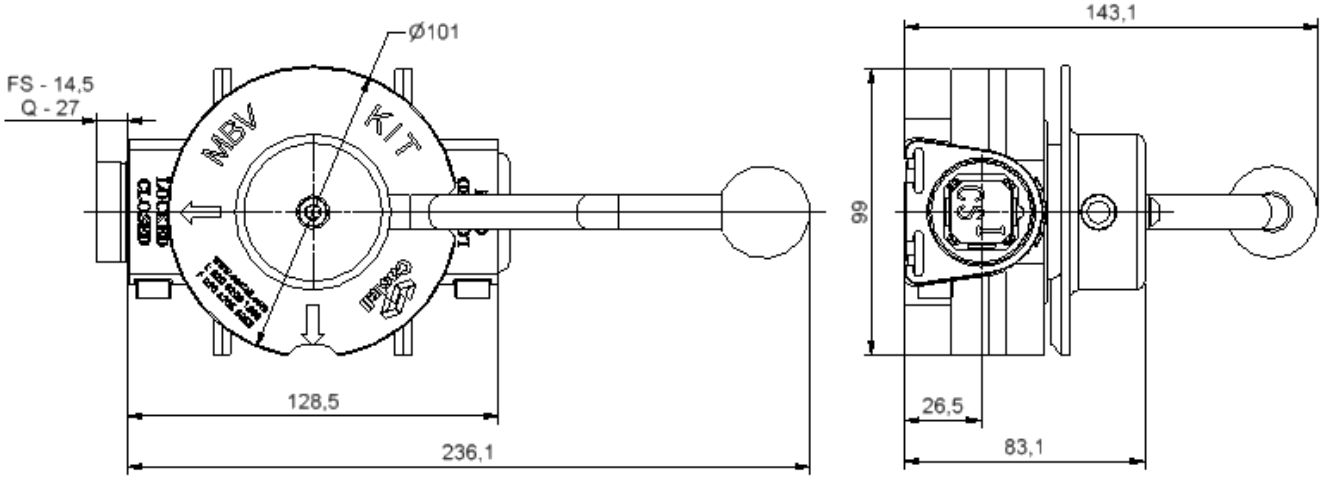
Dimensions:
in mm

Note: *For safe mounting, use security screws*

MBV, opened position



MBV, closed position



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Order Information

	Product Type		1	2		3		4*
Part Number	MBV	-			-		-	
Example	MBV	-	FS	S	-	L/O - L/C	-	

5
- L/O Symbol: A
- L/C Symbol: B

1	**Lock portion type**	FS (1) / Q (1)
2	**Material**	S = Stainless steel (standard)
3	**Valve locked state**	L/O = locked open L/C = locked closed L/O-L/C = locked open and closed
4*	Optional: additional features available	SWITCH = complete with LIMIT SWITCH EEXDSW = complete with ATEX LIMIT SWITCH
5	**Lock portion symbols**	L/O Symbol = locked open symbol (please advise) L/C Symbol = locked closed symbol (please advise) FS (1) up to 3 characters / Q (1) up to 6 characters

(1) **FS - Lock type** Up to 3 characters **Q - Lock type** Up to 6 characters

Accessories

Special construction available upon enquiry

	Product	Part number
	Flip Cap	FLIP-S

Contact Information

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Appendix - Pricing Application Form Questionaire

In order to ensure accurate and consistent pricing, Castell prices all valves on a price on application basis. Please complete the questions below and return via email to sales@castell.com.

If you require assistance please call our technical sales team at +44 (0)20 8200 1200.

Customer organisation name

Customer organisation contact person

Customer organisation contact number and email address

Delivery address

Valve details

(1) Type of host valve/s (please circle one)

Ball Valve Butterfly

(2) Valve model, manufacturers and part number

(3) Is it 2 or 3 way valve? (please circle one)

2-way 3-way

(4) Degree of rotation (please circle one)

90 Degrees 180 Degrees

(5) Size of valve in DN or inches

(6) Operating torque

(7) Class of valve

(8) Gland size

(9) Pressure handling capacity (alternatively, please provide a data sheet of valve in selection)

(10) Operating temperature

(11) Weight of the valve

(12) Is the interlocked valve a sequence or one-off? (please circle one)

Sequence One-off

(13) Operating cycle of the valve (please circle one)

Daily Monthly
Yearly Other

(14) Does the valve handle gases or fluids?

(15) Is the valve exposed to hazardous operating environment? If so, please specify

Note: All completed pricing application forms must be accompanied by a top work drawing of the entity in question. An example of the type of top work drawing required is included on page 8 of this document.

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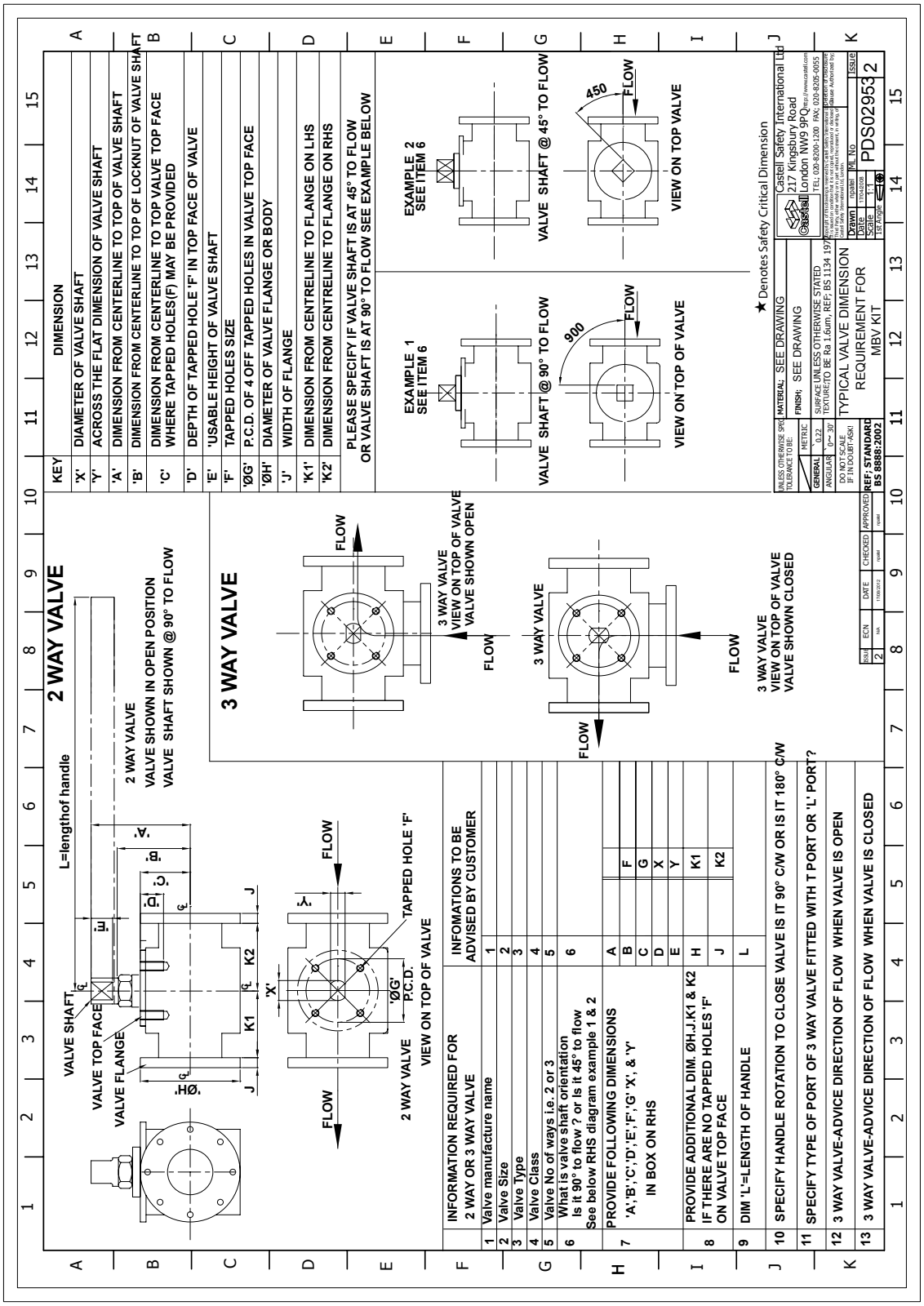
Pricing Application Form Questionaire

Top Work Drawing Example

As to be provided with the Pricing Application Form


2 WAY VALVE
L=lengthof handle
VALVE SHAFT
VALVE TOP FACE
VALVE FLANGE
2 WAY VALVE
VALVE SHOWN IN OPEN POSITION
VALVE SHAFT SHOWN @ 90° TO FLOW
2 WAY VALVE
VIEW ON TOP OF VALVE
3 WAY VALVE
3 WAY VALVE
VIEW ON TOP OF VALVE
VALVE SHOWN OPEN
3 WAY VALVE
VIEW ON TOP OF VALVE
VALVE SHOWN CLOSED
FLOW
KEY
DIMENSION
'X' DIAMETER OF VALVE SHAFT
'Y' ACROSS THE FLAT DIMENSION OF VALVE SHAFT
'A' DIMENSION FROM CENTERLINE TO TOP OF VALVE SHAFT
'B' DIMENSION FROM CENTERLINE TO TOP OF LOCKNUT OF VALVE SHAFT
'C' DIMENSION FROM CENTERLINE TO TOP VALVE TOP FACE WHERE TAPPED HOLES(F) MAY BE PROVIDED
'D' DEPTH OF TAPPED HOLE 'F' IN TOP FACE OF VALVE
'E' 'USABLE HEIGHT OF VALVE SHAFT
'F' TAPPED HOLES SIZE
'ØG' P.C.D. OF 4 OFF TAPPED HOLES IN VALVE TOP FACE
'ØH' DIAMETER OF VALVE FLANGE OR BODY
'J' WIDTH OF FLANGE
'K1' DIMENSION FROM CENTRELINE TO FLANGE ON LHS
'K2' DIMENSION FROM CENTRELINE TO FLANGE ON RHS
PLEASE SPECIFY IF VALVE SHAFT IS AT 45° TO FLOW OR VALVE SHAFT IS AT 90° TO FLOW SEE EXAMPLE BELOW
EXAMPLE 1 SEE ITEM 6
EXAMPLE 2 SEE ITEM 6
VALVE SHAFT @ 90° TO FLOW
VALVE SHAFT @ 45° TO FLOW
VIEW ON TOP OF VALVE
VIEW ON TOP VALVE
900
450
FLOW
★ Denotes Safety Critical Dimension
TYPICAL VALVE DIMENSION REQUIREMENT FOR MBV KIT
Castell Safety International Ltd
217 Kingsbury Road
London NW9 9PQ
PDS02953 2
INFORMATION REQUIRED FOR 2 WAY OR 3 WAY VALVE
INFOMATIONS TO BE ADVISED BY CUSTOMER
1 Valve manufacture name
2 Valve Size
3 Valve Type
4 Valve Class
5 Valve No of ways i.e. 2 or 3
6 What is valve shaft orientation Is it 90° to flow ? or Is it 45° to flow See below RHS diagram example 1 & 2
7 PROVIDE FOLLOWING DIMENSIONS 'A','B','C','D','E','F','G' 'X', & 'Y' IN BOX ON RHS
8 PROVIDE ADDITIONAL DIM. ØH,J,K1 & K2 IF THERE ARE NO TAPPED HOLES 'F' ON VALVE TOP FACE
9 DIM 'L'=LENGTH OF HANDLE
10 SPECIFY HANDLE ROTATION TO CLOSE VALVE IS IT 90° C/W OR IS IT 180° C/W
11 SPECIFY TYPE OF PORT OF 3 WAY VALVE FITTED WITH T PORT OR 'L' PORT?
12 3 WAY VALVE-ADVICE DIRECTION OF FLOW WHEN VALVE IS OPEN
13 3 WAY VALVE-ADVICE DIRECTION OF FLOW WHEN VALVE IS CLOSED
REF: STANDARD BS 8888:2002

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